

**A. INTRODUCTION**

This chapter has been prepared pursuant to the requirements of Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966. Based on this Draft Section 4(f) Evaluation (Evaluation), FRA has determined that there are no feasible and prudent alternatives that would avoid use of all Section 4(f) properties. Therefore, this Evaluation includes a determination of which of the alternatives using a Section 4(f) property will result in the least overall harm in light of the statute's preservation purposes, and identifies appropriate measures to minimize harm.

**B. REGULATORY CONTEXT AND METHODOLOGY**

Section 4(f) of the USDOT Act of 1966 (49 USC § 303) prohibits the Secretary of Transportation from approving any program or project that requires the "use" of (1) any publicly owned parkland, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; or (2) any land from a historic site of national, state, or local significance (collectively, "Section 4(f) properties"), unless there is no feasible and prudent alternative to the use of such land and such program or project includes all possible planning to minimize harm to the park, recreation area, wildlife refuge, or historic site. A historic site is considered to be a property that is listed on, or eligible for listing on, the National Register of Historic Places ("NR-listed" and "NR-eligible").

A "use" of Section 4(f) resources occurs:

- When land is permanently incorporated into a transportation facility;
- When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or
- When there is a constructive use of land, which occurs "when the transportation project does not incorporate land from a Section 4(f) property, but the proximity impacts are so severe that the protected activities, features, or attributes that qualify property for protection under Section 4(f) are substantially impaired."

In some cases, even if there is a use of a Section 4(f) property, Federal Railroad Administration (FRA) may determine that a use is *de minimis*. FRA may make a *de minimis* determination on a historic site only if, pursuant to the Section 106 consultation process:

- The transportation program or project will have no adverse effect on the historic site, or there will be no historic properties affected by the transportation program or project; and
- FRA's finding has received written concurrence from the applicable State historic preservation officer; and

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- FRA has developed its finding in consultation with parties consulting as part of the Section 106 consultation process.

With respect to parks, recreation areas, or wildlife or waterfowl refuges, FRA may make a finding of *de minimis* impact only if:

- After public notice and opportunity for public review and comment, FRA finds that the transportation program or project will not adversely affect the activities, features, and attributes of the park, recreation area, or wildlife or waterfowl refuge eligible for protection under this section; and
- The finding has received concurrence from the officials with jurisdiction over the park, recreation area, or wildlife or waterfowl refuge.

If FRA determines that there is no feasible and prudent avoidance alternative, then FRA may approve from among the alternatives that use Section 4(f) properties only the alternative that causes the least overall harm in light of the statute's preservation purpose.<sup>1</sup> A *feasible and prudent avoidance alternative* would avoid using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property.

An alternative is not feasible if it cannot be built as a matter of sound engineering judgment. An alternative is not prudent if:

- 1) It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
- 2) It results in unacceptable safety or operational problems;
- 3) After reasonable mitigation, it still causes severe social, economic, or environmental impacts; severe disruption to established communities; severe disproportionate impacts to minority or low income populations; or severe impacts to environmental resources protected under other Federal statutes;
- 4) It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
- 5) It causes other unique problems or unusual factors; or
- 6) It involves multiple factors of the above, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

If there is no feasible and prudent avoidance alternative, FRA may approve only the alternative that causes the least overall harm in light of Section 4(f)'s preservation purpose. "Least overall harm" is determined by balancing the following list of factors:

- 1) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
- 2) The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;

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<sup>1</sup> FHWA regulations are not binding on FRA; however, in the absence of applicable FRA regulations, FRA has chosen to use 23 CFR Part 774 for reference and guidance in this Final Section 4(f) Evaluation.

- 3) The relative significance of each Section 4(f) property;
- 4) The views of the official(s) with jurisdiction over each Section 4(f) property;
- 5) The degree to which each alternative meets the purpose and need for the project;
- 6) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- 7) Substantial differences in costs among the alternatives.

### C. POTENTIAL IMPACTS OF THE BUILD ALTERNATIVES

The Project Team identified all properties within the study area eligible for protection pursuant to Section 4(f). Section 4(f) properties that were identified within the study area include properties that would not be adversely affected by the Proposed Project. Some of these Section 4(f) properties include publicly owned parks such as Trego Field/Perryville Mini-Park, Lower Ferry Park and Pier, Perryville Community Park, David Craig Park, Battery Village Park, and Swan Harbor Farm. See Chapter 6, “Parks, Trails, and Recreational Resources” for a description of each of these parks. Other Section 4(f) properties include historic resources, such as Southern Terminus, Susquehanna and Tidewater Canal—South Lock #1, *Martha Lewis* (skipjack), Principio Furnace, Perry Point Mansion House and Mill, Perry Point Veterans Administration Medical Historic District, Crothers House, Woodlands Farm Historic District, Perryville United Methodist Church, and Perryville Presbyterian Church, See Chapter 8, “Cultural Resources” for a description of each of these historic resources. As the Proposed Project would not adversely affect these properties, the project would not constitute a Section 4(f) use of these properties and no further analysis is necessary.

Section 4(f) regulations apply to archaeological sites (including those discovered during construction) if their value derives from their preservation in place. As described in Chapter 8, “Cultural Resources,” studies to identify the potential for significant historic resources within the project area included a Phase IA archaeological investigation and reconnaissance and historic architectural sites surveys. There is the possibility that archaeological resources are present in the City of Havre de Grace, the Town of Perryville, and the lower Susquehanna River. These potential archaeological resources, if present, would most likely be important for the information they might yield and not for preservation in place. Therefore, at this time, FRA and Maryland Department of Transportation (MDOT) do not consider these potential archaeological resources as Section 4(f) properties. If, however, based on further study and consultation with Maryland Historical Trust (MHT), FRA and MDOT determine that any archaeological resources present within the project site derive their value from preservation in place, FRA and MDOT will supplement this Evaluation to address these properties. The draft Programmatic Agreement (PA) includes specific commitments regarding archaeology (see **Appendix D**, “Cultural Resources”).

The following text discusses the effect of Alternative 9A and Alternative 9B on each of the properties shown in **Figure 9-1** and evaluates whether the effect constitutes a “use”, a *de minimis* use, or documents why the effect does not rise to the level of a 4(f) “use”.

#### ALTERNATIVE 9A

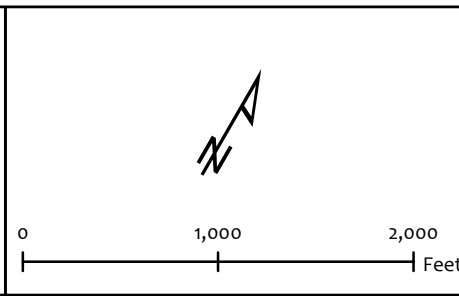
Alternative 9A would result in the “use” of the following three Section 4(f) properties:





Legend			
	Havre de Grace Middle/High School Athletic Fields <sup>1</sup>		Perry Interlocking Tower
	Havre de Grace Historic District		Undergrade (UG) Bridges
	Jean S. Roberts Memorial Park <sup>1</sup>		Alternative 9A LOD
	Rodgers Tavern <sup>2</sup>		Alternative 9B LOD
	<sup>1</sup> De minimis use. <sup>2</sup> Would not rise to level of "use" under Section 4(f).		1,000 ft Study Area
			Perryville Train Station
			Susquehanna River Rail Bridge

**Data Sources**  
 Historic District and Rodgers Tavern:  
 Maryland Historical Trust



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**Figure 9-1**  
 Evaluated Section 4(f) Properties



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- The removal of the existing NR-eligible Susquehanna River Rail Bridge and alteration of eight of its nine associated rail undergrade bridges;
- The removal of the Perry Interlocking Tower and the alteration of the Access Road Undergrade Bridge 59.39 (also known as the Perryville Train Station Undergrade Bridge), which are contributing elements of the NR-eligible Perryville Railroad Station;
- The acquisition of a small amount of property within the NR-listed Havre de Grace Historic District and visual and aesthetic effects on the Historic District;

In addition, FRA intends to determine that Alternative 9A would result in the *de minimis* use of the following properties.

- The acquisition of a narrow strip of the city-owned portion of Jean S. Roberts Memorial Park (Alternative 9A and Alternative 9B); and
- The acquisition of a portion of the Havre de Grace Middle/High School athletic fields.

FRA will base the final *de minimis* impact determination after providing an opportunity for public review.

In addition, Alternative 9A would have an adverse effect on the NR-listed Rodgers Tavern in the context of Section 106 of the National Historic Preservation Act (NHPA). The Project Team considered the effect on Rodgers Tavern in this Evaluation because of the Proposed Project's proximity to this Section 4(f) property and documented the evaluation in this chapter. As discussed in more detail in the following text, the Project Team determined that with the implementation of mitigation measures, the proximity issues would not cause a substantial impairment to the resource and the adverse effect in the context of Section 106 would not rise to the level of "use" under Section 4(f).

### *SUSQUEHANNA RIVER RAIL BRIDGE AND OVERPASSES*

As discussed in Chapter 8, "Cultural Resources," the existing Susquehanna River Rail Bridge (also known as the Amtrak Railroad or Perryville Road Bridge), and nine undergrade bridges were all constructed during the same 1904-1906 building campaign by the Pennsylvania Railroad and are NR-eligible. The Susquehanna River Rail Bridge, which is owned by Amtrak, was determined eligible for listing on the NR under National Register Criterion A as an example of an early 20th century railroad bridge built by an important American railroad company and under National Register Criterion C as an example of engineering that acknowledges two different modes of transportation (rail and marine) and allows each to operate without much interference from the other.

With Alternative 9A, the existing Susquehanna River Rail Bridge would be taken out of service and demolished, and two new fixed bridges, which would have 60 feet of vertical clearance, would be constructed. In addition, eight of the nine undergrade bridges associated with the Susquehanna River Rail Bridge would be directly impacted with Alternative 9A. The removal of the existing NR-eligible Susquehanna River Rail Bridge and alteration of these eight rail undergrade bridges would constitute a use of this Section 4(f) property. The Lily Run undergrade bridge at MP 60.85 would be spanned over; therefore, it will not be adversely affected.

*PERRYVILLE RAILROAD STATION*

As discussed in Chapter 8, “Cultural Resources,” the Perryville Railroad Station, located at 650 Broad Street, is NR-eligible under National Register Criterion A for its role in transportation history, and under National Register Criterion C as an excellent example of the Colonial Revival style of architecture. Constructed circa 1905 by the Philadelphia, Baltimore, and Washington (PB&W) Railroad Company, the station is currently owned by Amtrak. There are two railroad-related structures that are located in close proximity to the Perryville Station, were constructed around the same time as the station, and contribute to its historic significance: the Perry Interlocking Tower, a two-story brick control tower southwest of the station; and the ashlar stone Access Road Undergrade Bridge 59.39 (also known as the Perryville Train Station Undergrade Bridge).<sup>2</sup>

Alternative 9A would require the demolition or removal of the Perry Interlocking Tower and the alteration of the Access Road Undergrade Bridge 59.39, which are contributing structures within the NR-eligible Perryville Railroad Station complex, constituting the use of this Section 4(f) property.

*HAVRE DE GRACE HISTORIC DISTRICT*

As described in Chapter 8, “Cultural Resources,” the existing Susquehanna River Rail Bridge and NEC pass through the Havre de Grace Historic District (NR-listed). The Historic District is listed on the National Register of Historic Places under National Register Criterion A related to the town’s role as a major commercial and transportation center in northern Maryland and for its community planning; and under National Register Criterion C for its architectural mix of nineteenth and early twentieth century structures and its many examples of locally quarried Port Deposit granite. It is estimated that approximately 800 of the 1,100 buildings within the Historic District contribute to the historic district.

Alternative 9A would result in adverse effects to the NR-listed Havre de Grace Historic District, including the demolition of the Susquehanna River Rail Bridge and the alternation of the undergrade bridges, which are contributing features of the Historic District and other effects described in Chapter 8. Additionally, due to the Proposed Project’s close proximity to some of the contributing elements within the Historic District, there is the potential for an adverse effect due to construction-related damage. The demolition of the Susquehanna River Rail Bridge and the alternation of the undergrade bridges constitute the use of the Historic District as a Section 4(f) resource.

*JEAN S. ROBERTS MEMORIAL PARK*

As described in Chapter 6, “Parks, Trails, and Recreational Resources,” Jean S. Roberts Memorial Park is a waterfront park in Havre de Grace, located west of the existing railroad right-of-way at Otsego Street and Water Street. A portion of the property is owned by Amtrak and a portion is owned by the City of Havre de Grace. The park offers approximately 0.87 acre (0.61 acre owned by the City and 0.26 acre owned by Amtrak and leased to the City) with amenities such as picnicking area, parking, fishing pier, kayak and boat launch.

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<sup>2</sup> A passenger shelter identified in the eligibility determination as contributing to the resource’s significance was recently demolished. It was located east of the tracks across from the train station.

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Alternative 9A would require the use of the entire Amtrak-owned portion of Jean S. Roberts Memorial Park, and therefore this portion would no longer be leased to the City of Havre de Grace. The portion owned by Amtrak is not considered a Section 4(f) property according to 23 CFR 774.11 (h), which states, “When a property formally reserved for a future transportation facility temporarily functions for park, recreation, or wildlife and waterfowl refuge purposes in the interim, the interim activity, regardless of duration, will not subject the property to Section 4(f).” Alternative 9A also requires the acquisition of a narrow strip (0.01 acre or 2.26 percent) of the City-owned portion of Jean S. Roberts Memorial Park beyond the Amtrak right-of-way.

FRA proposed to determine that the use of the City-owned portion of Jean S. Roberts Memorial Park is *de minimis*. The Mayor of the City of Havre de Grace concurred that the Section 4(f) use of the City-owned portion of Jean S. Roberts Memorial Park for the Proposed Project would not adversely affect the activities, features, or attributes qualify this property for protection under Section 4(f). The Mayor was authorized to do so by City Resolution 2016-10 passed by the Mayor and City Council on July 5, 2016. The City of Havre de Grace concurs with the proposed *de minimis* impact finding after taking into account mitigation measures, as discussed in letters from Havre de Grace, included in **Appendix H**, “Public Involvement and Agency Correspondence.” FRA will make a final *de minimis* determination following public review.

### *HAVRE DE GRACE MIDDLE/HIGH SCHOOL ATHLETIC FIELDS*

The Havre de Grace Middle/High School athletic fields are school fields owned by the Board of Education of Harford County, as detailed in Chapter 6, “Parks, Trails, and Recreational Resources.” Located at 401 Lewis Lane/700 Congress Ave, east of the existing Amtrak right-of-way in Havre de Grace, the school fields offer approximately 57.6 acres with amenities such as the Harris Stadium (a track and field venue), multi-use fields, baseball/softball diamonds, and tennis courts. As described in further detail in Chapter 10, “Section 6(f) Evaluation,” the Havre de Grace High School received Land and Water Conservation Funds to construct three tennis courts and one multi-purpose court at the high school in 1966.<sup>3</sup> When the high school was expanded in 1978, the original tennis courts were relocated on the school site. In 1970, the Havre de Grace Middle School received additional Land and Water Conservation Funds to construct one multi-purpose court, four baseball fields, and a cinder running track.

Alternative 9A would result in the acquisition of 1.5 acres of the 57.6 acres used for the Havre de Grace Middle/High School athletic fields. Alternative 9A would require the reconfiguration and reconstruction of the track and football field on the school property.

Based on the analysis of the potential impacts to the Havre de Grace Middle/High School Athletic Fields and the minimization and mitigation measures, FRA proposes to make a *de minimis* finding for the use of the facility. Harford County Public Schools concurred that the Section 4(f) use of the Havre de Grace Middle/High School Athletic Fields for the Proposed Project would not adversely affect the activities, features, or attributes qualify this property for protection under Section 4(f), assuming mitigation and terms discussed in correspondence with the Assistant Superintendent for Operations, Superintendent of Schools, and Board of Education President, included in **Appendix H**, “Public Involvement and Agency Correspondence.” FRA will make a final *de minimis* determination following public review.

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<sup>3</sup> Consultation letter from Harford County Director of Parks and Recreation, dated June 25, 2015.

*RODGERS TAVERN*

As described in Chapter 8, “Cultural Resources,” Rodgers Tavern (NR-listed) is located approximately 100 feet north<sup>4</sup> of the existing Amtrak right-of-way near Roundhouse Drive and Broad Street. The two-and-a-half-story coursed-stone structure dates to the mid-18th century. Rodgers Tavern is NR-listed under National Register Criterion A for its association with prominent national figures such as George and Martha Washington, Marquis de Lafayette, and Lieutenant General Rochambeau; and under National Register Criterion C as an example of 18th century building construction and materials. In accordance with an easement that the Society for the Preservation of Maryland Antiquities (“grantor”) deeded to the Maryland Historical Trust (“grantee”) in 1976 and amended in 1986, a preservation easement exists on the interior and exterior of the tavern as well as the associated land. As a result of the covenant, the grantor has agreed to keep and maintain the property and to allow the grantee an opportunity to review any proposed alterations.

Alternative 9A would have no direct effects on Rodgers Tavern. However, as discussed in Chapter 7 “Visual and Aesthetic Conditions,” there will be an adverse visual effect due to the need to widen the bridge approach in front of the tavern and to construct a retaining wall along the embankment. The proposed changes in front of the tavern, especially the need to bring the tracks closer to the tavern and the need to construct a retaining wall, will result in “the isolation of the property from or alteration of the character of the property’s setting when that character contributes to the property’s qualification for the NR,” thus constituting an adverse effect in the context of Section 106, as discussed in Chapter 8, “Cultural Resources.”

No land that is part of Rodgers Tavern property will be permanently incorporated into the Proposed Project and no temporary occupancy of the property is planned. As stated above, Rodgers Tavern is listed on the NR under Criterion A based on its association with prominent national figures and under NR Criterion C as an example of eighteenth century building construction and materials. The indirect adverse visual effects would not affect the building’s history or the structure itself. With the mitigation measures identified in Section E, “Measures to Minimize Harm,” the Proposed Project would not result in a proximity impact that is so severe that the attributes that qualify the property for protection under Section 4(f) will be substantially impaired. The adverse effect would therefore not rise to the level of a 4(f) “use”. Specifically, the Proposed Project would not affect the tavern’s association with prominent national figures, nor would it affect the character of the property’s setting to a degree that it would no longer serve as an example of eighteenth century building construction and materials. Therefore, as the Proposed Project would not permanently incorporate land that is part of Rodgers Tavern, temporarily occupy land that is part of Rodgers Tavern, or result in a “constructive use” of Rodgers Tavern, the Proposed Project would not result in the use of this Section 4(f) property.

**ALTERNATIVE 9B**

Alternative 9B would result in the same use of the following three properties as Alternative 9A:

- Susquehanna River Rail Bridge and Overpasses
- Perryville Railroad Station complex

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<sup>4</sup> For consistency with the “Cultural Resources” chapter, true geographic directions were used, not railroad directions.



- Havre de Grace Historic District

Alternative 9B would result in the same *de minimis* use of Jean S. Roberts Memorial Park as Alternative 9A. Alternative 9B would not require the use of the Havre de Grace Middle/High School athletic fields. Alternative 9B would result in the same effect on Rodgers Tavern as Alternative 9A and would not result in a “constructive use” of this Section 4(f) property.

### D. AVOIDANCE ANALYSIS

The two alternatives (Alternative 9A and Alternative 9B) retained for detailed study in this EA would result in the use of Section 4(f) properties. An “avoidance alternative” is an alternative that avoids use of *all* 4(f) properties. Therefore this section analyzes alternatives that avoid *all* of the resources described in the previous section, consistent with 23 CFR 774.17 and FHWA Section 4(f) policy.<sup>5</sup> FRA identified two avoidance alternatives—the No Action Alternative and a Rehabilitation Alternative. Several Rehabilitation Alternatives were considered in the alternatives screening process but not selected for detailed study in this EA (see **Appendix A**, “Alternatives Screening Report and Bridge Design Types”). Other alternatives considered included alternatives that would avoid some, but not all of Section 4(f) properties, such as Rehabilitation of the Existing Bridge with Conversion to Lift Bridge; Build New Bridges on New Alignments and Leave Existing Bridge in Place; Double Decker Structure, Build on Existing Alignment, and others. As none of these alternatives avoid the use of *all* Section 4(f) properties, they are not considered Avoidance Alternatives in this Evaluation.

### NO ACTION ALTERNATIVE

Under the No Action Alternative, the existing Susquehanna River Rail Bridge would not be removed and would remain in service as is, with no intervention besides minimal repairs and continuation of the current maintenance regime.

Although the No Action Alternative would allow the Susquehanna River Rail Bridge and associated undergrade bridges to remain and would not require any use of Section 4(f) properties, it would not meet the Project’s Purpose and Need. The primary purpose of the Proposed Project is to provide continued rail connectivity along the NEC. Under the No Action Alternative, the bridge would continue to deteriorate and problems would occur more frequently as the bridge is approaching the end of its useful life. The bridge would remain as a bottleneck. It would continue to cause operational problems and constraints, including navigation. Continued deterioration could also present safety hazards. The maintenance and repair costs would continue to rise and the bridge would eventually need to be taken out of service to rail traffic. Allowing the bridge to continue to deteriorate to the point of closure would require inefficient rerouting of trains, resulting in further delays. This would create major impacts along the NEC, severely disrupting rail commuters and transport of freight along the corridor. Bringing the bridge to a state of good repair without severe disruptions to rail traffic would be costly and inefficient and would not resolve constraints to projected passenger and freight movement and navigation.

Overall, the No Action Alternative would be feasible, but it would not be prudent, based on the consideration of factors #1, #2, and #4 regarding prudence listed in Section B, “Regulatory Context and Methodology.”

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<sup>5</sup> U.S. Department of Transportation, Federal Highway Administration, Section 4(f) Policy Paper, July 2012 <https://www.environment.fhwa.dot.gov/4f/4fpolicy.asp>, accessed September 2016.

## REHABILITATION ALTERNATIVES

Rehabilitation Alternatives would include improvements to the existing Susquehanna River Rail Bridge and associated undergrade bridges to remove structural and seismic deficiencies. Three types of rehabilitation alternatives were evaluated, including rehabilitation of the existing bridge without modifying the track alignments, rehabilitation of existing bridge in conjunction with a new bridge, and rehabilitation with the conversion of the swing bridge to a lift bridge. Only the rehabilitation of the existing bridge without modifying the track alignments would potentially avoid the use of all Section 4(f) properties. As discussed below, it is possible that even with the rehabilitation of the existing bridge without modifying the track alignments the required repairs would be so extensive that they would compromise the historic integrity of the bridge. It is possible that those repairs would amount to a Section 4(f) use of the bridge, in which case the alternative could not be considered an avoidance alternative.

Amtrak conducted its most recent engineering inspection of the Susquehanna River Rail Bridge in 2013 (with a supplemental specialty pin testing program in 2014), which indicated that the bridge superstructure is in poor to fair structural condition. The inspection revealed deficiencies requiring repair; the recommended repairs have been enumerated and prioritized into short, medium, and long-term time horizons. Short-term structural repairs involve addressing numerous cracked members and the installation of retrofits in an attempt to restrain movement and prevent cracking. The cracks and worn pin joints allowing movement are so extensive in the pin-connected trusses and represent such a major portion of the overall bridge system that it is not deemed economical, prudent, or feasible to continue on this course of ongoing repair. Piecemeal repairs of fatigue cracks due to corrosion and section loss and out-of-plane bending, replacement of missing fasteners and patching holes in primary support members will not restore bridge members to their original condition as the fatigue damage has already been done.

- The recommended repairs in the inspection report address specific deficiencies but would not upgrade the bridge to a state of good repair. A state of good repair assumes bridge management practices that minimize asset life-cycle costs and avoid service disruption and load restrictions as well as providing a reliable factor of safety. These goals cannot be achieved with a more than 100-year-old bridge that contains thousands of fractured critical members whose remaining life cannot be precisely determined. The engineering report concluded that the only practical way to restore this bridge to a state of good repair would be to replace the fatigue-damaged pin-connected deck truss spans with truss spans of modern design. This effort would entail removing the existing trusses, erecting new trusses, and installing the track and rail systems to restore service, which would compromise the historic integrity of the bridge.
- Even after repair, the bridge would remain as a bottleneck and would not provide the needed connectivity along the NEC. The Rehabilitation Alternative would continue to subject intercity, commuter, and freight trains to the delays and problems associated with the design and age of the existing bridge and would be cost-inefficient. It would also not improve navigational traffic. The Rehabilitation Alternative would compromise the project to a degree that it would be unreasonable to proceed with it in light of the stated Purpose and Need. Replacing the existing trusses without a new adjacent two-track bridge already in service would result in prolonged and unacceptable shutdowns of rail operations and would significantly and adversely impact Amtrak, MARC and NS.

Overall, the Rehabilitation Alternative would be feasible, but it would not be prudent, based on the consideration of factors #1, #2, and #4 regarding prudence listed in Section B, “Regulatory

Context and Methodology.” It is also possible that none of the Rehabilitation Alternatives would completely avoid the use of all Section 4(f) properties.

### **E. MEASURES TO MINIMIZE HARM**

For the reasons discussed above, the No Action and Rehabilitation Alternatives are not considered prudent and feasible. As required by Section 106 of NHPA, FRA and MDOT are participating in an ongoing consultation process with the MHT and consulting parties regarding the potential effects on archaeological and historic architectural resources. Through consultation with MHT, FRA and MDOT have developed measures to minimize or mitigate the adverse effect on the properties protected under Section 4(f). For NR-listed or eligible properties the development of mitigation measures is set forth in the draft PA, to be executed by MHT, FRA, Amtrak and MDOT. The draft PA is included in **Appendix D**, “Cultural Resources.” The draft PA lists the historic resources that may be affected by the project and also describes the continuing consultation process that will be conducted as project designs evolve. The draft PA also describes the measures to be implemented during the project’s design process, to avoid, minimize, or mitigate adverse effects of the project on historic resources. Coordination with the City of Havre de Grace and Harford County Public Schools will continue as the planning and implementation of the Proposed Project progresses to ensure that appropriate minimization and mitigation measures are implemented for the Jean S. Roberts Memorial Park and for Alternative 9A, Havre de Grace Middle/High School. Mitigation measures under consideration for each resource are described below.

### **SUSQUEHANNA RIVER RAIL BRIDGE AND OVERPASSES**

Measures to minimize adverse effects of the project on the NR-eligible Susquehanna River Rail Bridge and nine undergrade bridges could include:

- For the two new bridges, use a more traditional design (either the truss approach/truss main span, girder approach/arch main span, or the girder approach/truss main span) as well as a more traditional pier design (either the arched keyhole, fluted, or wall);
- For the proposed extensions or replacements of the eight historic undergrade bridges, use a form liner that emulates stone and is stained to be compatible with the color of the existing stone. In addition, new retaining walls in close proximity to the bridges should be designed in accordance with the *Secretary of the Interior’s Standards for the Treatment of Historic Properties*;
- Prepare documentation of the Susquehanna River Rail Bridge and the eight undergrade bridges following Historic American Engineer Record (HAER) standards;
- Develop educational materials interpreting the history and significance of the bridge for use by local libraries, historical societies, and educational institutions;
- Produce a short film that documents the character-defining historical and engineering aspects of the Susquehanna River Rail Bridge;
- Salvage elements of the Susquehanna River Rail Bridge; and/ or
- Develop an interpretive exhibit in a park, greenway, or public space.

## PERRYVILLE RAILROAD STATION

To avoid demolishing the structure and creating an adverse effect on the Perry Interlocking Tower, Amtrak is evaluating the possibility of shifting the tower approximately 25 feet within the Amtrak right-of-way. The change in location would be minor and would not adversely affect the relationship between the Perry Interlocking Tower and the Perryville Station. This step would avoid one of several possible adverse effects to the historic station complex.

In addition, as described above, through consultation with MHT and Section 106 consulting parties, FRA and MDOT have developed measures to mitigate the adverse effect on the NR-eligible Perryville Railroad Station complex. Development of these mitigation measures is set forth in the draft PA, to be executed by MHT, FRA, Amtrak and MDOT. The draft PA is included in **Appendix D**. The draft PA lists the historic resources that may be affected by the project and also describes the continuing consultation process that will be conducted as project designs evolve. The draft PA also describes the measures to be implemented during the project's design process, to avoid, minimize, or mitigate adverse effects of the project on historic resources. Such measures could include:

- For the proposed extension to the Access Road Undergrade Bridge 59.39, use a form liner that emulates stone and is stained to be compatible with the color of the existing stone. In addition, new retaining walls in close proximity to the bridge and station should be designed in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*;
- Prepare HAER recordation to document the two contributing resources that would be altered and/or removed; and
- Develop and install signage interpreting the history of the Perryville Railroad Station.

## HAVRE DE GRACE HISTORIC DISTRICT

As detailed in the Alternatives Retained for Detailed Study (see **Appendix A**, "Alternatives Screening Report and Bridge Design Types"), the alternatives screening process minimized direct impacts to contributing resources of the Havre de Grace Historic District. In accordance with the draft PA, the Proposed Project's Construction Protection Plan (CPP) will include consideration of all significant structures within close proximity to the Project in order to protect these architectural resources from damage during the construction period.

Additional steps to minimize or mitigate adverse effects to the Havre de Grace Historic District could include:

- Ensure that the two new bridges over the river use a traditional design for the bridges and piers;
- Ensure that any new physical structures such as the retaining walls are designed in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*; and
- For the proposed extensions to the four historic undergrade bridges within the Historic District, use a form liner that emulates stone and is stained to be compatible with the color of the existing stone.



**JEAN S. ROBERTS MEMORIAL PARK**

In order to limit the impact to Jean S. Roberts Memorial Park, the Project Team reduced construction clearances and future inspection and maintenance clearances to the practical minimum distances. FRA and MDOT will work with the City of Havre de Grace to identify additional appropriate mitigation measures and to ensure that a replacement for the Jean S. Roberts Memorial Park boat ramp is provided in a suitable location.

**HAVRE DE GRACE MIDDLE /HIGH SCHOOL ATHLETIC FIELDS**

Measures to minimize harm to Havre de Grace Middle/High School have been developed in collaboration with the school board. These measures are described below.

*EXISTING TRACK AND FIELD FACILITIES*

The proposed retaining wall requires modification or relocation of the existing pole vault/high jump, long jump and 110-meter hurdle runout area at the existing track and field facility. A storage shed would also be impacted. Minimization and Mitigation for impacts to these facilities include:

- Amtrak would build the railroad on an elevated structure over the 110-meter hurdle runout area. During construction the runout would be reduced to 8.5 meters but after construction would be rebuilt to its current 11.5-meter length.
- Relocate pole vault, high jump, long jump and storage shed.
- The Project would reimburse Harford County Public Schools for the agreed upon additional design cost.
- To the extent practical, construction would be scheduled to minimize disruption to these facilities.

*PLANNED BASEBALL FIELD CONSTRUCTION*

The Project Team has reviewed plans for a new baseball field proposed as part of the High School/Middle School development. Although this field has not yet been constructed, Harford County Public Schools is in the process of designing the facility. As such, FRA and MDOT have taken the future baseball field into account in their assessment of the impacts to the property. It is recommended that baseball fields should be built with a 60-foot clear area behind the foul line. As currently designed, the proposed retaining wall for Alternative 9A would encroach within this clear area by up to 20 feet. To address this impact, MDOT has worked with Harford County Public Schools to develop the following minimization and mitigation measures:

- The baseball field would be redesigned by shifting home plate three feet away from the railroad and rotating the field 2.5 degrees counter clockwise.
- Design consultant working on the baseball fields would redesign the field to provide adequate clear area around Amtrak’s proposed retaining wall.
- The Project would reimburse Harford County Public Schools for the agreed upon additional design cost.
- Amtrak would provide conduit and embedded inserts for installation of a future score board by Harford County Public Schools.
- Amtrak would install a protective netting to shield the railroad from foul balls.

*EXISTING 20-INCH WATER MAIN*

An existing 20-inch water main is located adjacent to Amtrak right of way, approximately 15 feet inside the Athletic Field property and would require relocation due to the proposed retaining wall. Minimization and mitigation for impacts to the water main include:

- The water main would be relocated in a casing, allowing future replacement to be done without affecting the athletic facilities.

Construction would be scheduled around use of the facilities.

**RODGERS TAVERN**

Through consultation with MHT and Section 106 consulting parties, FRA and MDOT have developed measures to minimize the adverse effect on the NR-listed Rodgers Tavern. Development of these measures, as set forth in the draft PA, could include:

- Ensure that the retaining wall in front of the tavern receives an aesthetic treatment, such as through use of a form-liner so that the wall imitates the look of stone and is compatible with the tavern’s architecture;
- Use landscaping to screen the wall if there is adequate space;
- Develop an appropriate mural for the retaining wall; and
- As stipulated in the draft PA, to ensure that there is no construction-related damage to structures within close proximity to the Proposed Project, the project PA will include development of a CPP. The CPP will identify all architectural resources to be included in the plan and will set forth the specific measures to be used and specifications that will be applied to protect these architectural resources from damage during the construction period.

**F. LEAST OVERALL HARM ANALYSIS**

If there is no feasible and prudent avoidance alternative, FRA may only approve the alternative that results in the least overall harm in light of Section 4(f)’s preservation purpose. FRA conducts the least overall harm analysis by considering the following factors<sup>6</sup>:

- The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
- The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
- The relative significance of each Section 4(f) property;
- The views of the official(s) with jurisdiction over each Section 4(f) property;
- The degree to which each alternative meets the purpose and need for the project;
- After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- Substantial differences in costs among the alternatives.

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<sup>6</sup> 23 CFR 774.3(c) (*See Section 3.3.3.2, Alternative with Least Overall Harm*)

## Susquehanna River Rail Bridge Project

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FRA has evaluated numerous alternatives throughout the NEPA process and determined that there are no feasible and prudent alternatives that completely avoid the use of Section 4(f) properties. Therefore, since all alternatives use Section 4(f) properties, FRA has undertaken a least harm analysis to determine the alternative with the least overall harm. Alternative 9A and Alternative 9B, which were selected for detailed evaluation in this EA, are considered.

Based on the thorough screening, Alternative 9A and Alternative 9B were retained for detailed study in the EA. The Project Team determined that Alternative 9A and Alternative 9B best meet the goals and objectives of the project, while minimizing environmental and property impacts.

### ALTERNATIVE 9A

As discussed in Chapter 2, “Project Alternatives,” Alternative 9A would construct a new two-track 90 mph bridge to the west of the existing bridge and a second new two-track 160 mph bridge on the existing bridge alignment. Alternative 9A has an estimated 5-year construction period and an estimated cost of \$930 million, based on the construction of the girder approach / arch main span bridge type. Alternative 9A will result in a Section 4(f) use of three historic resources, including the Susquehanna River Rail Bridge and Overpasses, Perryville Railroad Station complex, and Havre de Grace Historic District. In addition, FRA intends to determine that Alternative 9A will result in a *de minimis* use of Jean S. Roberts Memorial Park and a *de minimis* use of the Havre de Grace Middle/High School athletic fields. Portions of the publicly-owned athletic fields are protected under Section 6(f) and may require replacement. As discussed in Chapter 10, “Section 6(f) Evaluation,” Section 6(f) prescribes the conditions that must be satisfied for the use or transfer of parklands or open spaces that have been improved with funds received through the Land and Water Conservation Fund (LWCF).

### ALTERNATIVE 9B

Alternative 9B is very similar to Alternative 9A. Like Alternative 9A, Alternative 9B would result in a new two-track 90 mph bridge west of the existing bridge and a second new two-track bridge replacing the existing bridge. The difference between Alternative 9A and Alternative 9B occurs in Havre de Grace along the east side of the corridor from Lewis Lane to the Susquehanna River. Alternative 9B lessens the curve in Havre de Grace and would limit the speed to a maximum of 150 mph. This lower speed, as compared to Alternative 9A, reduces the amount of property acquisitions required, including the avoidance of the Havre de Grace Middle/High School athletic fields. Alternative 9B has an estimated 5-year construction period and an estimated cost of \$890 million based on the construction of the girder approach / arch main span bridge type. In terms of Section 4(f), Alternative 9B will result in the same use of the three historic resources as Alternative 9A (Susquehanna River Rail Bridge and Overpasses, Perryville Railroad Station complex, and Havre de Grace Historic District). In addition, as with Alternative 9A, FRA intends to determine that Alternative 9B will result in a *de minimis* use of Jean S. Roberts Memorial Park. In terms of Section 4(f), the difference between Alternative 9B and Alternative 9A is that Alternative 9B will not require the *de minimis* use and replacement of the Havre de Grace Middle/High School fields.

### EVALUATION OF LEAST OVERALL HARM

Below is a summary of FRA’s consideration with respect to each factor considered in least overall harm analysis.

*ABILITY TO MITIGATE ADVERSE IMPACTS TO EACH SECTION 4(F) PROPERTY*

The impact to the Susquehanna River Rail Bridge and Overpasses, Perryville Railroad Station complex, Havre de Grace Historic District, and Jean S. Roberts Memorial Park will be the same with Alternative 9A and with Alternative 9B. The ability to mitigate the adverse impacts will be the same with both alternatives. Adverse impacts to the Havre de Grace Middle/High School athletic fields with Alternative 9A are able to be mitigated sufficiently to result in an impact that FRA proposes to determine will constitute a *de minimis* use.

*RELATIVE SEVERITY OF THE REMAINING HARM, AFTER MITIGATION, TO THE PROTECTED ACTIVITIES, ATTRIBUTES, OR FEATURES THAT QUALIFY EACH SECTION 4(F) PROPERTY FOR PROTECTION*

The severity of the remaining harm, after mitigation, to the Susquehanna River Rail Bridge and Overpasses, Perryville Railroad Station complex, Havre de Grace Historic District, and Jean S. Roberts Memorial Park will be the same with Alternative 9A and with Alternative 9B. FRA intends to determine that harm to the Havre de Grace Middle/High School athletic fields after mitigation is *de minimis*. The difference between the *de minimis* harm with Alternative 9A and no harm to the school property with Alternative 9B is negligible and therefore not a significant differentiating factor between the Build Alternatives.

*THE RELATIVE SIGNIFICANCE OF EACH SECTION 4(F) PROPERTY*

The relative significance of the resources affected by both Build Alternatives is not essential to determine, as the effect of the two Build Alternatives on those resources would be the same. The significance of the Havre de Grace Middle/High School athletic fields, which would be minimally affected under Alternative 9A only, is considered to be less than the significance of the historic resources that would be affected with both Alternative 9A and Alternative 9B.

*THE VIEWS OF THE OFFICIAL(S) WITH JURISDICTION OVER EACH SECTION 4(F) PROPERTY*

In a letter dated August 24, 2016 (see **Appendix H**, “Public Involvement and Agency Coordination”), MHT agreed with the findings presented in the *Effects Assessment for Historic Architectural Resources* (see **Appendix D**, “Cultural Resources”). In support of FRA’s proposed *de minimis* determination, the City of Havre de Grace concurred that the Section 4(f) use of the City-owned portion of Jean S. Roberts Memorial Park under both Build Alternatives, with mitigation, would not adversely affect the activities, features, or attributes qualifying this property for protection under Section 4(f). In support of FRA’s proposed *de minimis* determination, Harford County Public Schools concurred that the use of the Havre de Grace Middle/High School athletic fields under Alternative 9A, with mitigation, would not adversely affect the activities, features, or attributes qualifying this property for protection under Section 4(f). Consistent with federal guidance, the *de minimis* use of the Havre de Grace Middle/High School athletic fields is not considered to be a significant differentiating factor between the Build Alternatives because the net harm resulting from the *de minimis* impact is negligible.

*THE DEGREE TO WHICH EACH ALTERNATIVE MEETS THE PURPOSE AND NEED FOR THE PROJECT*

As discussed in Chapter 2, “Project Alternatives,” the two Build Alternatives were compared for their ability to meet the Purpose and Need for the project, considering the project goals and



## **Susquehanna River Rail Bridge Project**

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objectives. Since the Build Alternatives were developed in consideration of these goals and objectives, there are few differences among the Build Alternatives. However, a key operational consideration is the project's ability to optimize existing and planned infrastructure by providing for a maximum authorized train speed of 160 mph, while taking both benefits and potential impacts into consideration. Amtrak developed the NEC Master Plan with planned speed increases up to a maximum authorized speed of 160 mph for this location along the NEC. Amtrak's NEC Master Plan is consistent with the congressional mandate placed on Amtrak to reduce travel times along the NEC.

As discussed above, Alternative 9A would allow for a maximum speed of 160 mph, while Alternative 9B would limit the speed to a maximum of 150 mph. Therefore, Alternative 9A is consistent with operational goals and with broader plans along the NEC. Overall, Alternative 9A better meets the Purpose and Need for the project and the broader goals for the NEC, and was therefore selected as the Preferred Alternative.

### *AFTER REASONABLE MITIGATION, THE MAGNITUDE OF ANY ADVERSE IMPACTS TO RESOURCES NOT PROTECTED BY SECTION 4(F)*

Alternative 9A would result in slightly greater impacts to resources not protected by Section 4(f) (e.g., a commercial displacement, as discussed in Chapter 4, "Land Use and Community Facilities;" and floodplains, streams, wetland, forest, and Chesapeake Bay Critical Area impacts, as discussed in Chapter 11, "Natural Resources") as compared to Alternative 9B. However, these additional impacts can be mitigated for and potentially reduced during final design.

### *SUBSTANTIAL DIFFERENCES IN COSTS AMONG THE ALTERNATIVES*

The construction cost of Alternative 9A is greater slightly greater than the construction cost of Alternative 9B (less than five percent of the overall project cost). Considering the greater long-term societal benefits and travel time cost savings associated with Alternative 9A, the greater construction cost is not a significant distinguishing factor between the Build Alternatives.

## **G. COORDINATION**

The Project Team has undertaken extensive public and community outreach efforts as part of the Proposed Project, along with federal, state, and local agency coordination (see Chapter 20, "Coordination and Consultation"). Numerous public meetings have been held throughout the environmental process at project milestones. In addition to public outreach information sessions, the Project Team has held numerous Interagency Review Meetings and key stakeholder meetings, including meetings with local officials, the Susquehanna River Rail Bridge Project Advisory Board, bicycle-pedestrian stakeholders, and Harford County Public Schools. As documented in **Appendix H**, "Public Involvement and Agency Coordination," Harford County Public Schools and the City of Havre de Grace concurred that the Proposed Project would "not adversely affect the activities, features, or attributes qualifying" Havre de Grace Middle/High School Athletic Fields and Jean S. Roberts Memorial Park for protection under Section 4(f).

The Section 106 consultation process for the Susquehanna River Rail Bridge began in April 2014. Section 106 consulting parties were invited to public outreach information sessions held on August 13, 2014, December 10, 2014, November 10, 2015, and April 14, 2016. Dedicated Section 106 meetings were held on March 9, 2015, August 18, 2015, and October 11, 2016. The Project Team has coordinated with MHT throughout the environmental review process.

Coordination included efforts to: determine the Area of Potential Effects (APE), identify historic properties within the APE, determine effects to historic properties, develop minimization and mitigation measures and develop the PA. Consultation between the Project Team and MHT is ongoing.

Public review of this Evaluation is being held concurrently with public review of the EA. Through consultation with Section 106 consulting parties and MHT, FRA and MDOT have developed measures to minimize harm on the Section 4(f) properties to be used for implementation of the project, as described above and provided in the draft PA contained in **Appendix D**, “Cultural Resources.”

## **H. SECTION 4(F) REVIEW PROCESS**

The draft Section 4(f) evaluation will be made available for a minimum 30-day public review, in tandem with public review of the EA. After public comments on this draft Evaluation are received, a final Section 4(f) evaluation will be prepared. The final Section 4(f) evaluation will contain the conclusions of the Section 4(f) evaluation, encompassing:

- A description of the basis for concluding that there are no prudent and feasible alternatives to the use of the Section 4(f) property, including a demonstration that there are unique problems or unusual factors involved in the use of alternatives that avoid these properties, or that the cost, social, economic, and environmental impacts or community disruption resulting from the alternatives reach extraordinary magnitudes;
- A description of the basis for concluding that the Proposed Project includes all possible planning to minimize harm; and
- A summary of appropriate formal coordination with the U.S. Department of the Interior (USDO).

FRA, acting as the lead federal agency, will make its final Section 4(f) finding, including the final *de minimis* determination, when it issues its findings on the EA. \*